

No. 684,969.

Patented Oct. 22, 1901.

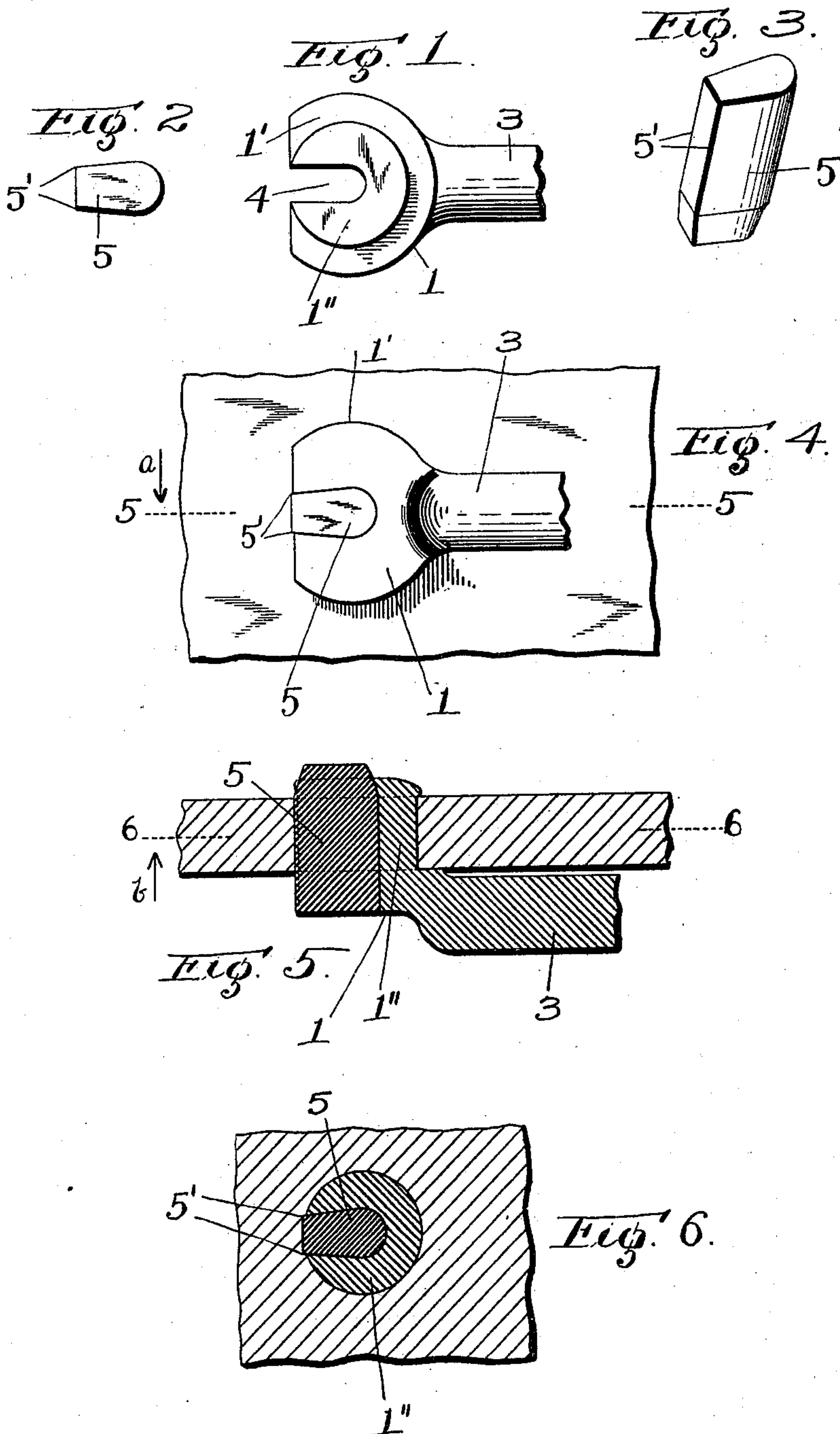
H. W. WYMAN.

RAIL BOND.

(Application filed Mar. 20, 1901.)

2 Sheets—Sheet 1.

(No Model.)



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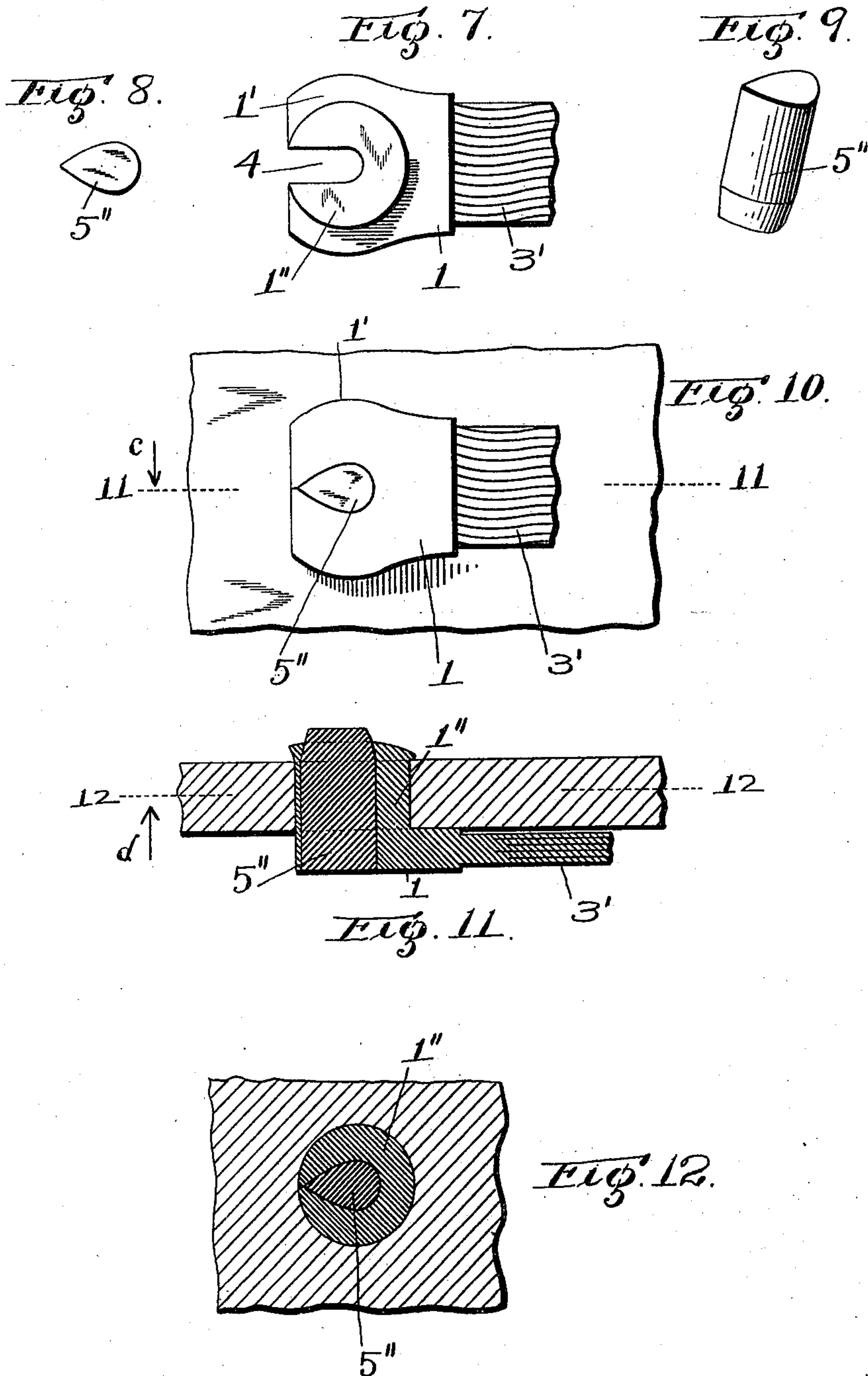
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# UNITED STATES PATENT OFFICE.

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## RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 684,969, dated October 22, 1901.

Application filed March 20, 1901. Serial No. 51,965. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE W. WYMAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Rail-Bonds, of which the following is a specification.

My invention relates to rail-bonds ordinarily made of copper and used for obtaining an electrical connection between the adjoining ends of rails in electric railroads, and more particularly to the terminal or end of the bond, which is secured to the rail; and the object of my invention is to make a rail-bond terminal or end with an open-end slot or recess therein to receive a locking pin or wedge by which the terminal is secured to the rail and held in close electrical contact therewith.

The bond proper extending between the terminals may be made separate from the terminals or integral therewith, as desired, and may be rigid or flexible and placed between the ends of the rails and the fish-plate or upon the outside of the fish-plate, as desired.

My invention consists in certain novel features of construction of my rail-bond terminal, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is an under side view of a rail-bond terminal embodying my improvements. Fig. 2 is an end view of the locking pin or wedge. Fig. 3 is a perspective view of the locking pin or wedge. Fig. 4 is a front view of a detached portion of a rail, showing the terminal shown in Fig. 1 secured thereto by the locking pin or wedge shown in Figs. 2 and 3. Fig. 5 is a section through the rail and terminal, taken at a point indicated by line 5 5, Fig. 4, looking in the direction of arrow *a*, same figure. Fig. 6 is a section on line 6 6, Fig. 5, looking in the direction of arrow *b*, same figure. Fig. 7 corresponds to Fig. 1, but the terminal is on the end of a flexible bond. Fig. 8 is an end view of a locking pin or wedge of modified construction. Fig. 9 is a perspective view of the locking pin or wedge shown in Fig. 8. Fig. 10 is a front view of a detached portion of a rail, showing the terminal shown in Fig. 7 secured thereto by the locking pin or wedge shown in Figs. 8 and 9. Fig. 11 is a section through

the rail and terminal, taken at a point indicated by line 11 11, Fig. 10, looking in the direction of arrow *c*, same figure; and Fig. 12 is a section on line 12 12, Fig. 11, looking in the direction of arrow *d*, same figure.

In the accompanying drawings the terminal or end 1 has in this instance the enlarged head or bearing-surface 1' and the circular portion 1'', extending out therefrom, which is adapted to extend through a circular hole in the rail.

In Fig. 1 the terminal 1 is shown on the end 3 of a rigid bond. In the terminal 1 is an open-end slot or recess 4, which extends through the terminal, with its inner end preferably extending beyond the center of the circular portion 1'' on the terminal. The open-end slot or recess 4 is preferably of the shape shown, with parallel sides and a curved inner end, and extends in from the edge of the head 1' and the circular portion 1'' of the terminal 1 and in this instance at the opposite side from the bond end 3. In connection with the terminal 1, having an open-end slot or recess 4 therein, I use a locking pin or wedge 5, preferably of the shape shown in Figs. 2 and 3, with one edge rounded and tapering or wedge-shaped toward its opposite edge, which is a flat surface with two sharp edges 5'. The thickness of the pin 5 is greater than the width of the recess 4 in the terminal 1 and the width of the pin is a little greater than the depth of the recess 4. One end of the pin 5 is a little smaller and tapering (see Fig. 3) to enter the recess 4 preparatory to driving the pin into the recess 4. As the pin 5 is thicker than the width of the recess 4 and tapering or wedge-shaped in cross-section, it acts as it is driven or forced into said recess to expand the metal around it into close contact with the rail. At the same time the sharp edges 5' on the outer edge of the pin 5 cut into the rail, and thus act to prevent the terminal 1 from turning or working loose in the opening in the rail.

In Fig. 7 the terminal is shown on the end 3' of a flexible bond, and in Figs. 8 and 9 is shown a modified form of the locking pin or wedge. In said Figs. 8 and 9 the locking pin or wedge 5'' is wedge-shaped in transverse section, with one edge made curved, corresponding to the pin 5 shown in Figs. 2 and 3,



and the opposite edge made pointed. The thickness of the pin 5" at its thicker portion is greater than the width of the recess 4 in the terminal 1, and the width of the pin is about the same or a little less than the depth of the recess 4. One end of the pin 5" is made a little smaller and tapering (see Fig. 9) to enter the recess 4 preparatory to driving the pin into the recess. As the pin 5" is thicker than the width of the recess 4 and tapering or wedge-shaped in cross-section, as above stated, it acts as it is driven or forced into said recess 4 to expand the metal around it in the terminal 1 and force it into close contact with the rail. By reason of the pointed edge on the pin 5" the metal in the terminal 1 is forced around the pointed edge of the pin 5", as shown in Figs. 11 and 12, so that a complete copper contact is made around the opening in the rail.

The advantages of my improvements in the terminals or ends of rail-bonds will be readily appreciated by those skilled in the art.

The slot or recess 4 is readily cut or made in the terminal, and the pin 5", when driven or forced into said recess, produces a complete copper contact around the opening in the rail. If the pin 5 is used, the area of copper contact is not so great, but the edges 5' cut into the iron and prevent the terminal from turning or working loose.

It will be understood that I do not limit my invention to the form of the terminal shown, with a head and circular portion, or the shape of the recess 4 shown, or to its position in the terminal, or to the shape of the locking pin or wedge shown.

The essential feature of my invention is a

terminal or end with an open-end slot or recess therein and the combination therewith of a locking pin or wedge preferably tapering or wedge-shaped in cross-section and of greater thickness than the width of the recess in the terminal, with the thicker portion of the locking pin or wedge at the inner end of the recess and the thinner portion at the outer end.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the terminal of a rail-bond, having an open-end slot or recess therein, of a locking pin, of wedge shape in transverse section, and adapted to be driven or forced into said slot or recess, with its thicker portion at the inner end of said slot or recess, substantially as shown and described.

2. The combination with the terminal of a rail-bond, having a head and a circular portion, with an open-end slot or recess therein, of a locking pin, of wedge shape in transverse section, to be driven or forced into said slot or recess, with its thinner portion at the outer end of said recess or slot, substantially as shown and described.

3. The combination with the terminal of a rail-bond, having an open-end slot or recess therein, of a locking-pin, of tapering shape in cross-section, with its thinner portion at the outer end of said recess or slot, and with a sharp edge or edges thereon to cut into the rail, and prevent the terminal from turning, substantially as shown and described.

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